Retrovirology

BioMed Central

Poster presentation

P04-08. Monoclonal antibodies from patient with acute HIV-1 infection

W Chen[1], X Xiao*[1], E Streaker[1], Y Wang[1], M Markowitz[2] and B Haynes[3]

Address: [1]CCRNP, NCI, NIH, Frederick, USA, [2]The Aaron Diamond AIDS Research Center/Rockfeller University, New York, NY, USA and [3]Human Vaccine Institute, Durham, NC, USA

* Corresponding author

from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P36 doi:10.1186/1742-4690-6-S3-P36

This abstract is available from: http://www.retrovirology.com/content/6/S3/P36

Background

Immunological characterization of acute/early HIV-1 infection is important for the design of effective vaccine capable of neutralizing early transmitted virus. However, while recently there is significant progress in our understanding of the nature of such virus, our knowledge of the antibodies elicited during this period and their dynamics is scarce. In particular, there are no such well characterized human monoclonal antibodies (mAbs).

Methods

We constructed phage-displayed antibody libraries from the bone marrow and peripheral blood obtained from an acutely infected patient 40 days and 8 months post infection. Several high-affinity mAbs were selected from these libraries by using recombinant soluble gp120-gp41s (gp140s, Envs) as antigens for panning and screening.

Results

Two of these antibodies were more extensively characterized. They bound to the selecting antigen but not to heterologous Envs and had limited neutralizing activity. Compared to the closest germline antibodies they had only several clonally related mutations – much less than known broadly neutralizing antibodies. More extensive characterization of these and newly identified mAbs as well as identification of new mAbs is in progress.

Conclusion

Previous studies have shown that selection of high-affinity antibodies from such libraries result in antibodies which are identical or very similar to those occurring in the host from which the libraries are made. These results indicate that during an acute infection the Env could elicit antibodies that are not significantly divergent from the corresponding germline antibodies but of significantly high neutralizing activity to possibly affect the virus dynamics. Further characterization of these antibodies, their dynamics and epitopes could provide knowledge that in addition to its usefulness for basic understanding of immune responses to HIV-1 could also help in the design of candidate vaccine immunogens that elicit potent neutralizers of early transmitted virus.